4-CHANNEL POWER AMPLIFIER

KAC-644

SERVICE MANUAL

KENWOOD

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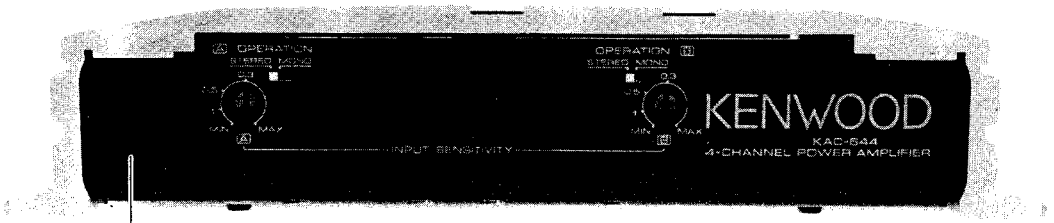
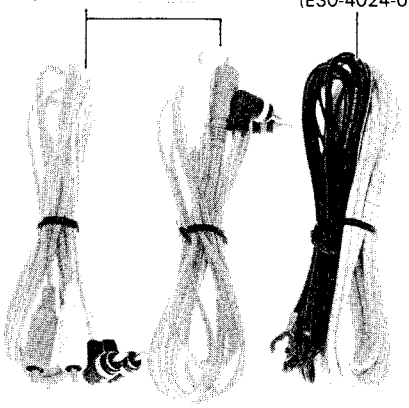
B51-6521-00(MC) 3816



Panel
(A64-0001-03)

* Audio cord
(E30-4031-05) × 2

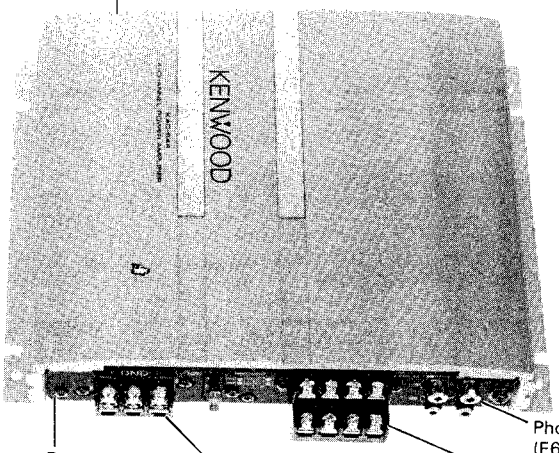
* DC cord ass'y
(E30-4024-05)



* Accessory
(W01-0701-05)

Screw set
(N99-1599-05)

Heat sink
(F01-1415-11)



Rear panel
(A84-0001-13)

Screw terminal 3P
(E70-0803-15)

Screw terminal 8P
(E70-0802-05)

Phono jack 4P
(E63-0804-05)

*: E Type only

KAC-644

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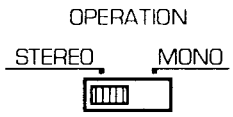
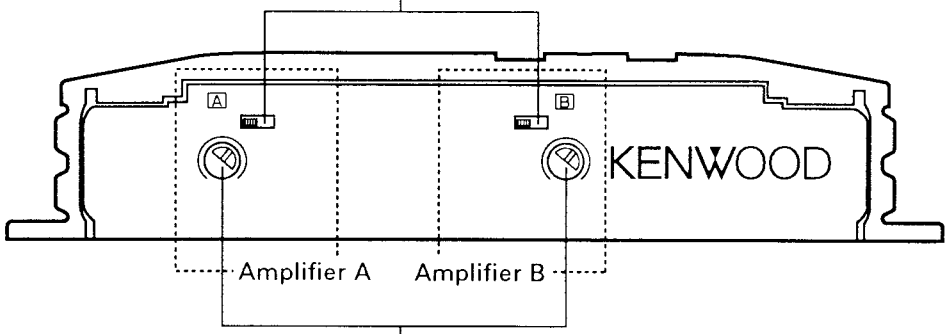
CONTROLS

This is a 4-channel amplifier having 2 stereo amplifier in a body. One amplifier is referred to as amplifier A and the other is amplifier B.

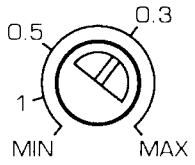
- **Operation switch**
  Usually, the unit can be used as a 4-channel amplifier. The unit also can be used as a 2-channel or 3-channel amplifier according to the operation switch.



- **STEREO position:**
  Set to this position to use the unit as a normal stereo amplifier.
- **MONO position:**
  Set to this position to use the unit as a monaural amplifier with a bridged output.



- **Input sensitivity control**
  Adjust this control according to the pre-out level of the center unit connected to this unit.

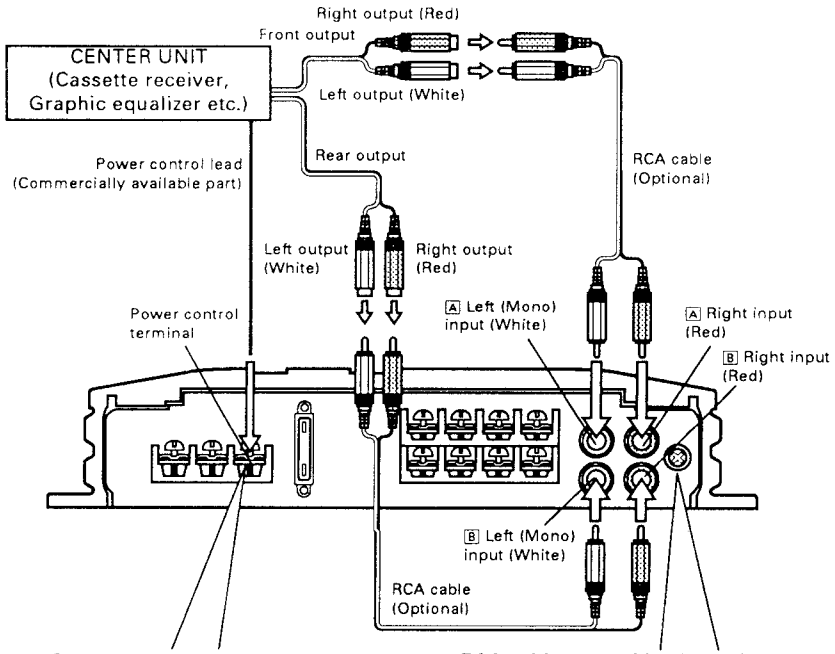


Center unit pre-out level	Amplifier input sensitivity
300 mV	MAX
800~1000 mV	0.3 V

NOTE

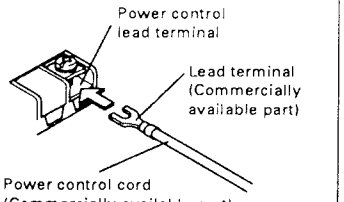
Refer to "SPECIFICATIONS" on the center unit's instruction manual about the pre-out level.

■ System connection



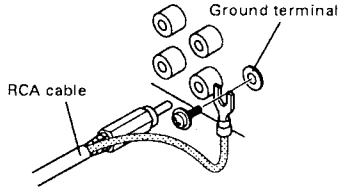
Power control lead terminal

- Connect the center unit's power control lead to this terminal.



RCA cable ground lead terminal

- When using an RCA cable with a ground lead attached, connect the ground lead to this terminal.



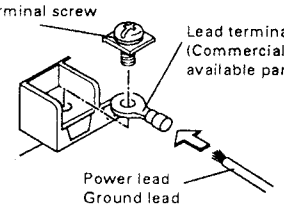
NOTE

Do not use this terminal for power source grounding. This unit will not operate if the power source ground wire is connected to this terminal.

■ Power and Speakers lead connection

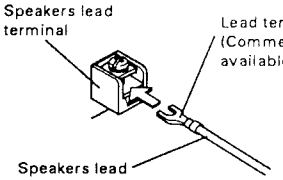
Power lead terminal

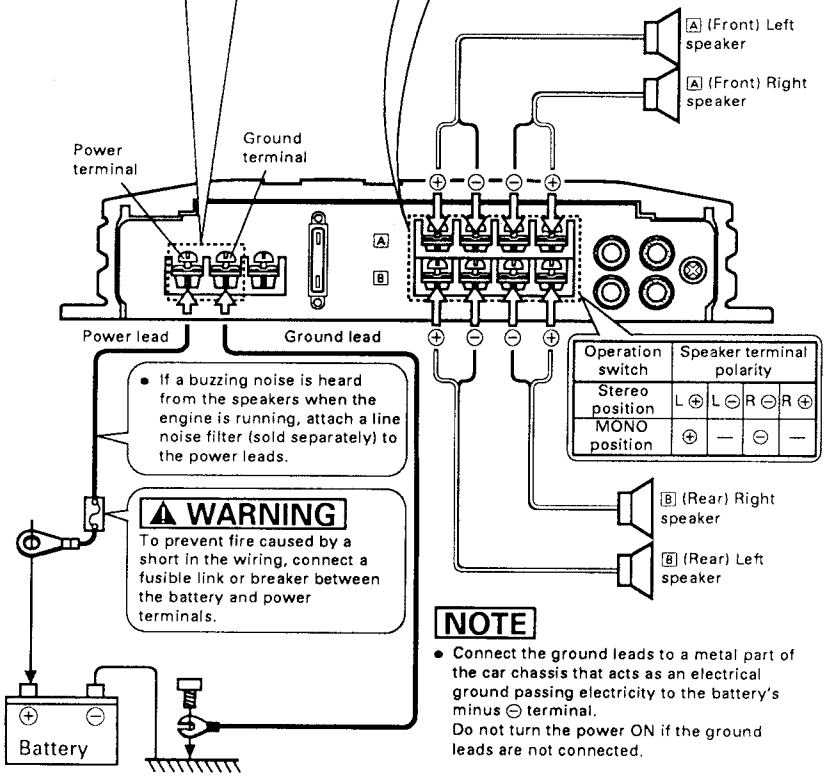
- Connect the power and ground lead to the corresponding terminals.



Speaker lead terminal

- Connect the speaker leads to these terminals.





Operation switch	Speaker terminal polarity			
Stereo position	L ⊕	L ⊖	R ⊖	R ⊕
MONO position	⊕	—	⊖	—

- If a buzzing noise is heard from the speakers when the engine is running, attach a line noise filter (sold separately) to the power leads.

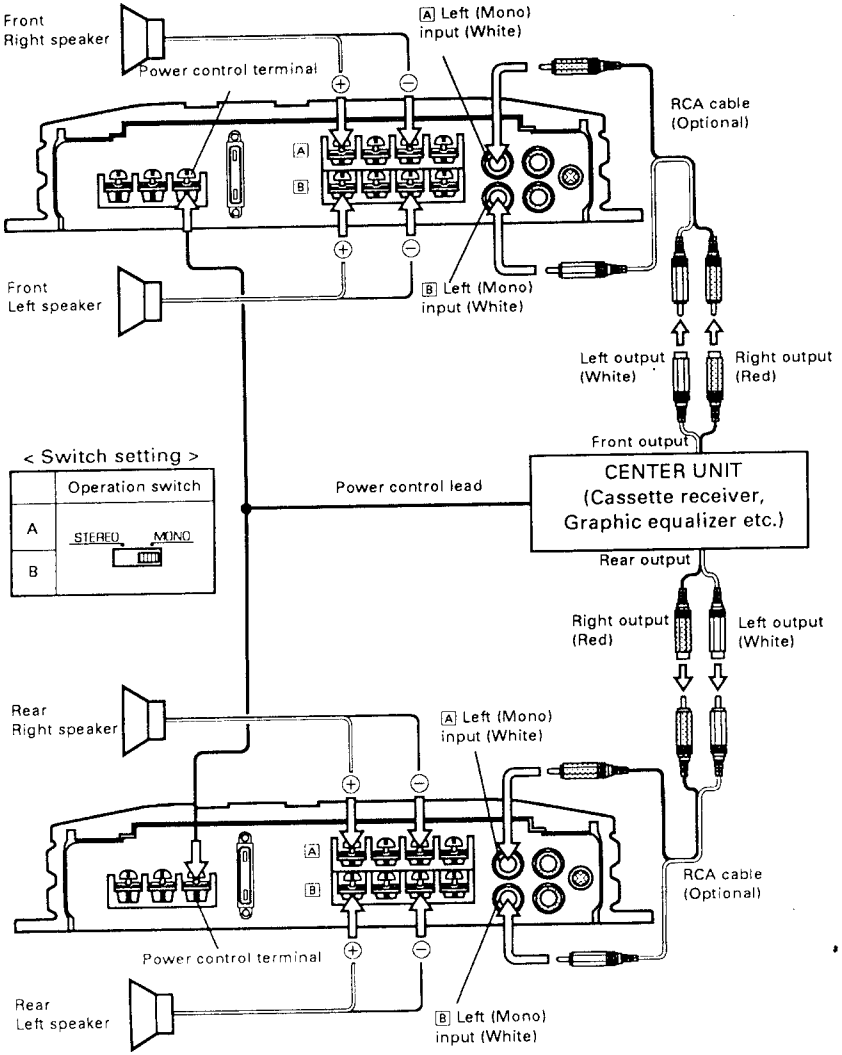
⚠ WARNING

To prevent fire caused by a short in the wiring, connect a fusible link or breaker between the battery and power terminals.

NOTE

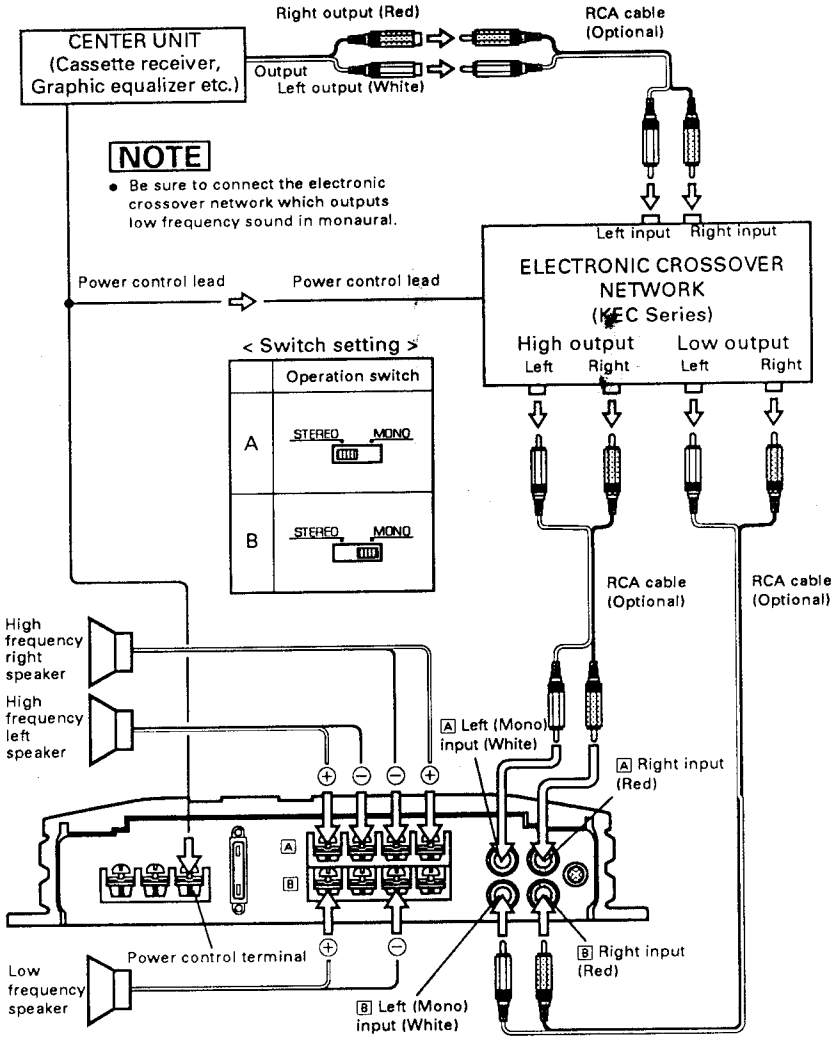
- Connect the ground leads to a metal part of the car chassis that acts as an electrical ground passing electricity to the battery's minus ⊖ terminal.
  Do not turn the power ON if the ground leads are not connected.

System example 1. **When two KAC-644 are used as 2-channel amplifiers, a high power 4-channel amplifier can be configurated.**



< Refer to P. 7 for details on power source wiring. >

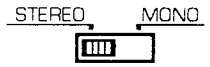
System example 2. **Using 2 outputs divided in high and low outputs by a electronic crossover network enables a multi amplifier system. (High frequency: stereo, low frequency: monaural)**



< Refer to P. 7 for details on power source wiring. >

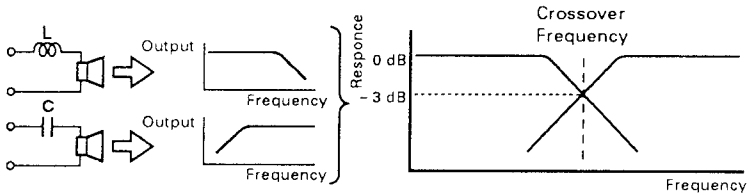
Only using coils and capacitors in the stereo 4-channel speaker system (refer below), a sub woofer can be added to the system.

- **Operation switch setting**



- **Characteristics of coil and capacitor**
  - Coil (L): Passes low frequencies and blocks high frequencies. (Low pass)
  - Capacitor (C): Passes high frequencies and blocks low frequencies. (High pass)

■ 6dB/octave for High and Low pass filter



■ Table of content for 6dB/octave

Cross over frequency	Speaker impedance			
	2 ohm		4 ohm	
	L (Coil)	C (Capacitor)	L (Coil)	C (Capacitor)
80 Hz	4.0 mH	1000 μF	8.0 mH	500 μF
100 Hz	3.2 mH	800 μF	6.4 mH	400 μF
150 Hz	2.1 mH	530 μF	4.2 mH	270 μF
200 Hz	1.6 mH	400 μF	3.2 mH	200 μF

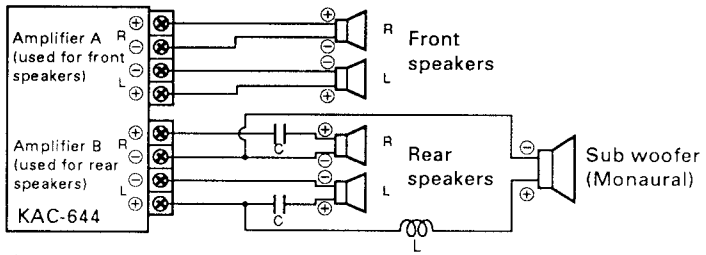
- If the coils and capacitors are not available in the values listed, coils and capacitors with similar or close values can be used without affecting the performance in practical use.
- Coils and capacitors not listed in the above table can be determined using the following formulas.

$$C=\frac{159000}{fc \times R}(\mu F) \qquad L=\frac{159 \times R}{fc}(mH)$$

fc=Cut of Frequency (Hz) R=Speaker Impedance (Ω)

■ SYSTEM EXAMPLES

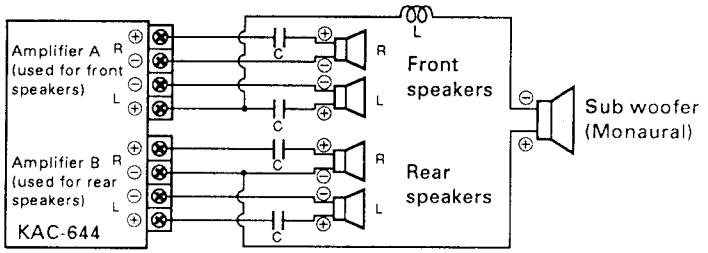
- **When a sub woofer is added to the rear speaker system**



NOTE

- Using the TRI-MODE PASSIVE CROSSOVER NETWORK "KPX-T120" (optional) makes the system's wiring easier.

- **When a sub woofer is added to the whole speaker system**



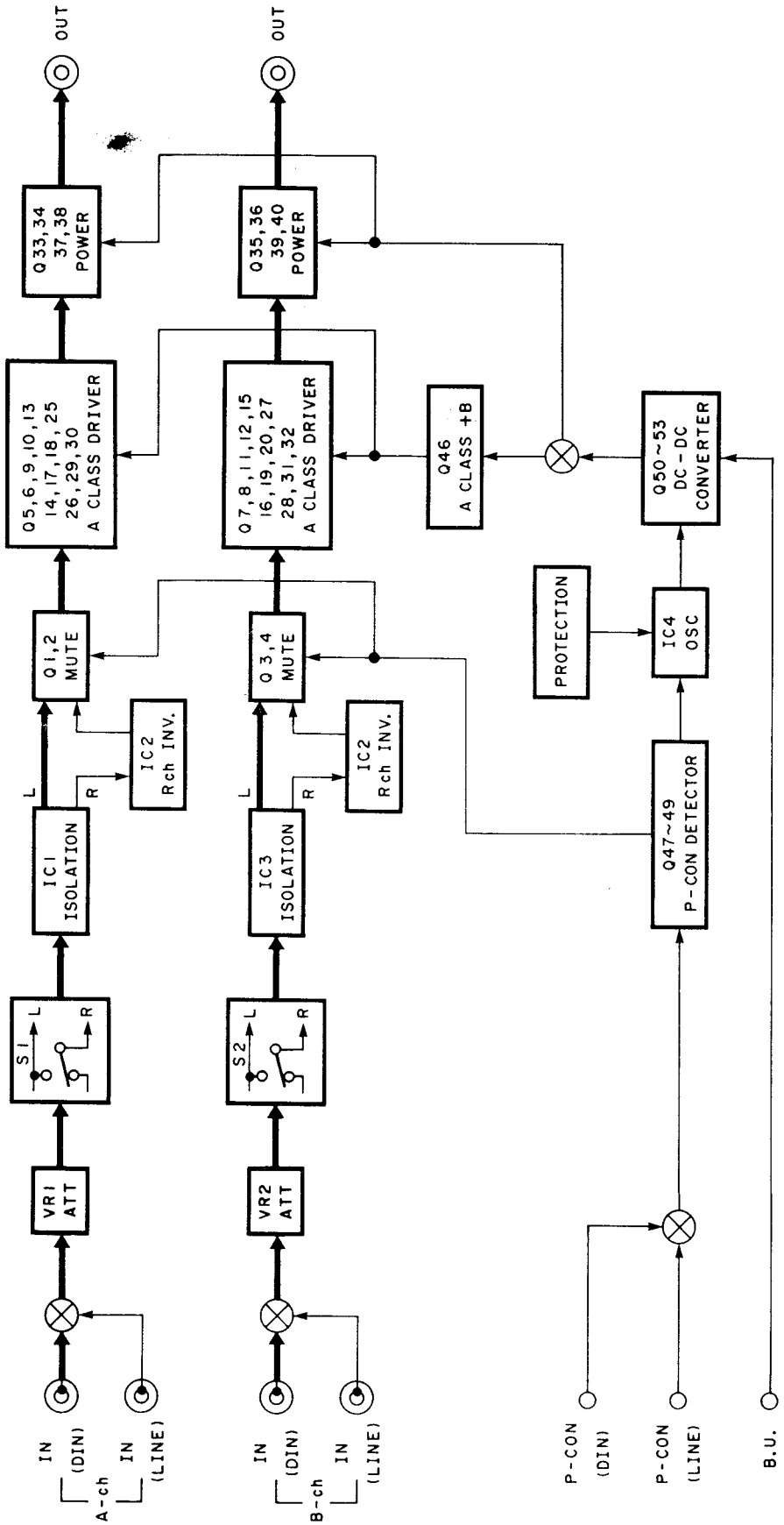
* The sub woofer is not affected by the controls on the center unit.

⚠ CAUTION

- Be sure that the combined impedance of your speaker system as seen from the KAC-644 is at least 2 ohms. An impedance of less than 2 ohms will damage the amplifier.

KAC-644

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

AUDIO UNIT (X09-340X-XX)

Ref. No.	Use/Function	Operation/Condition/Compatibility
IC1, 3	G-isolation	
IC2	R CH inversion stage	General-purpose SIP opamp.
D1-8	Latch up prevention	General-purpose diodes.
D13, 14, 15	Constant-voltage Zener diodes	
D16	P-CON OFF shock noise	
Q21~24	Idle current	
Q25~32	Driver	
Q33~40	Output stage	
Q41~44	Current protection	Detection transistors.
D9~12	Current protection	Reverse bias shaping.
D28	LED	
D25	P-CON sensitivity	
D24	Inverse connection protection	
D27	−B current	
Q50~53	DC-DC converter	
Q1~4	Muting transistors	

SUB-CIRCUIT UNIT (X13-6850-10)

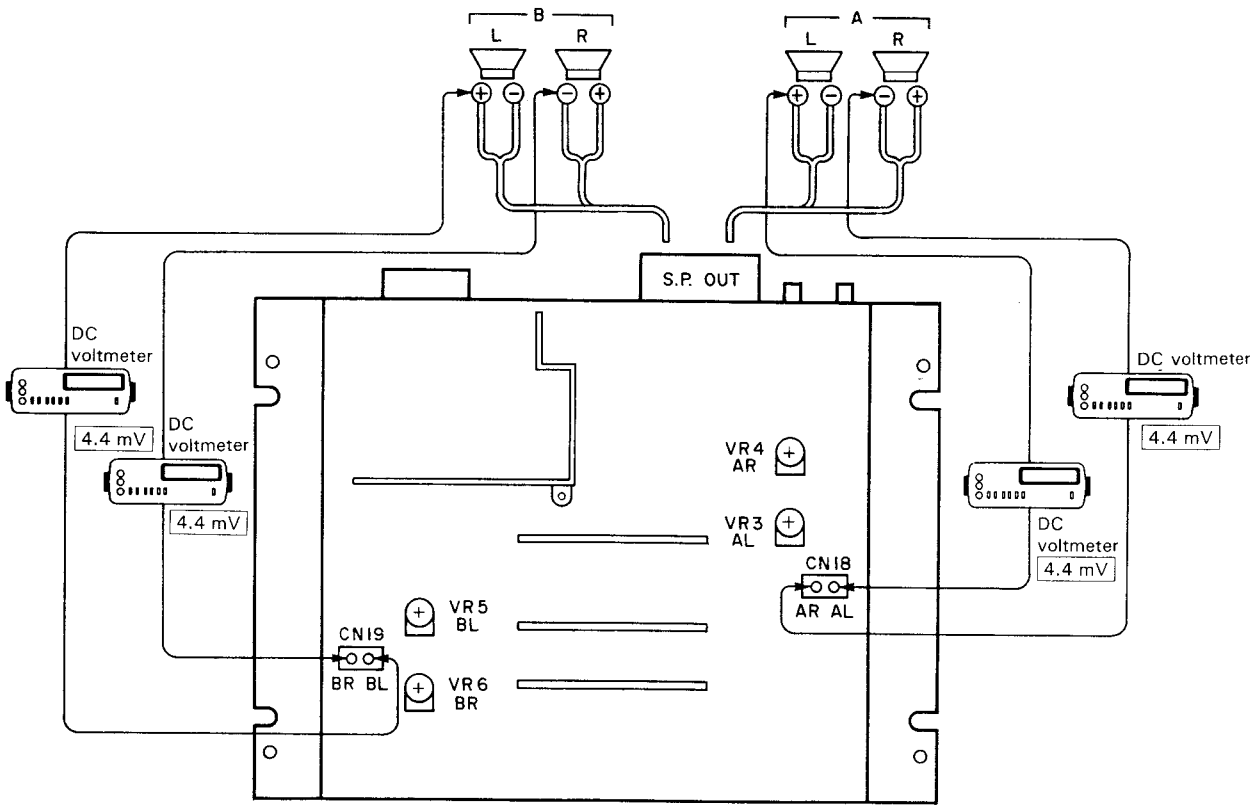
Ref. No.	Use/Function	Operation/Condition/Compatibility
Q5~20	Power amp differentiation stage	
Q45	Muting driver	
Q46	Class A slow starter	
Q47	P-CON OFF, quick release	
Q48, 49	+B SW	
D28	Muting power supply	
D17~21	Logic circuit	
IC4	DC-DC OSC, controller	
D22	Reverse current stopping	

ADJUSTMENT

ADJUSTMENT

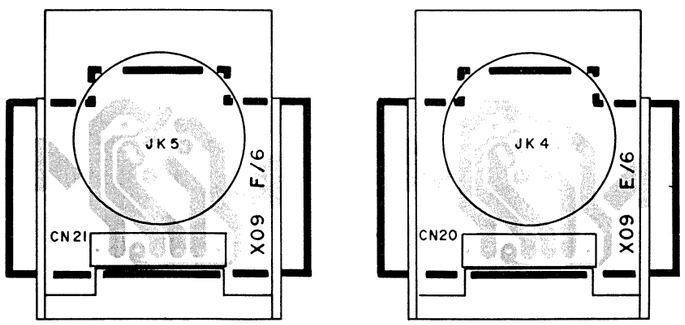
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
Connect a cassette deck							
1	IDLE CURRENT	—	Connect a DC voltmeter between A CN18(L, R) B CN19(L, R) and SP-OUT(L+, R-)	volume: 0	A VR3 (L) A VR4 (R) B VR5 (L) B VR6 (R)	4.4mV (20mA)	(a)

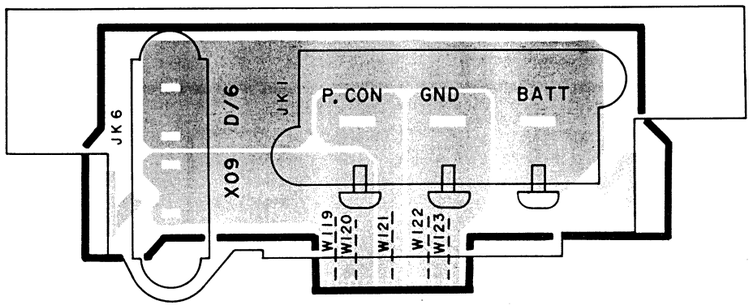
ADJUSTMENT POINTS



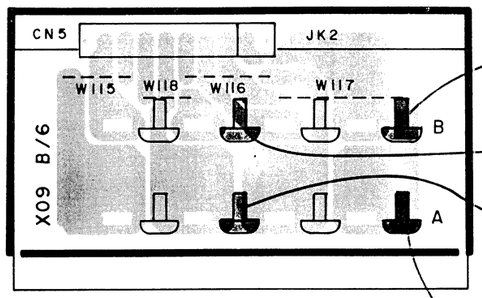
AUDIO UNIT (X09-340X-XX)

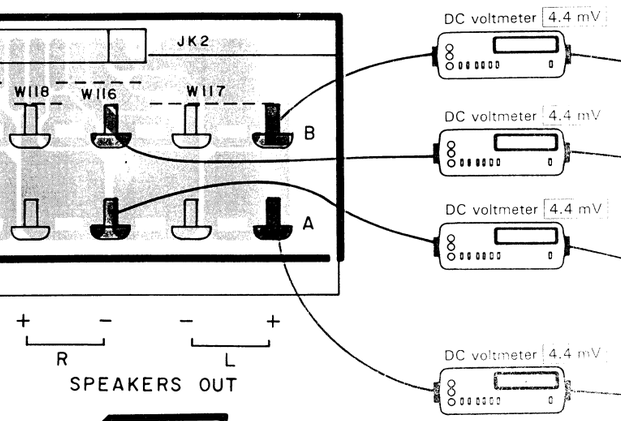
LINE IN





FUSE

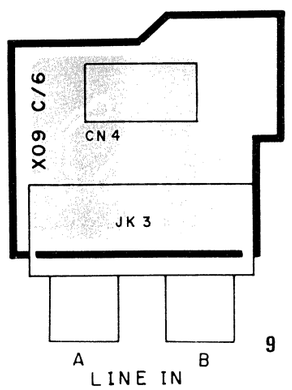




+ − − +

R L

SPEAKERS OUT



LINE IN

9

IDLE CURRENT

Q33	
E	6V
C	14.4V
B	0.6V

Q37	
E	0V
C	−18.2V
B	−0.6V

Q50	
E	0.3V
C	14.4V
B	−4.1V

Q51	
E	0.3V
C	14.4V
B	−4.1V

Q52	
E	0V
C	14.4V
B	0.3V

Q53	
E	0V
C	14.4V
B	0.3V

IC1	
1~4	0V
5	5.2V
6	0V
7	8.2V
8	–
9~12	0V

IC2	
1~3	0V
4	−8.2V
5~7	0V
8	5.2V

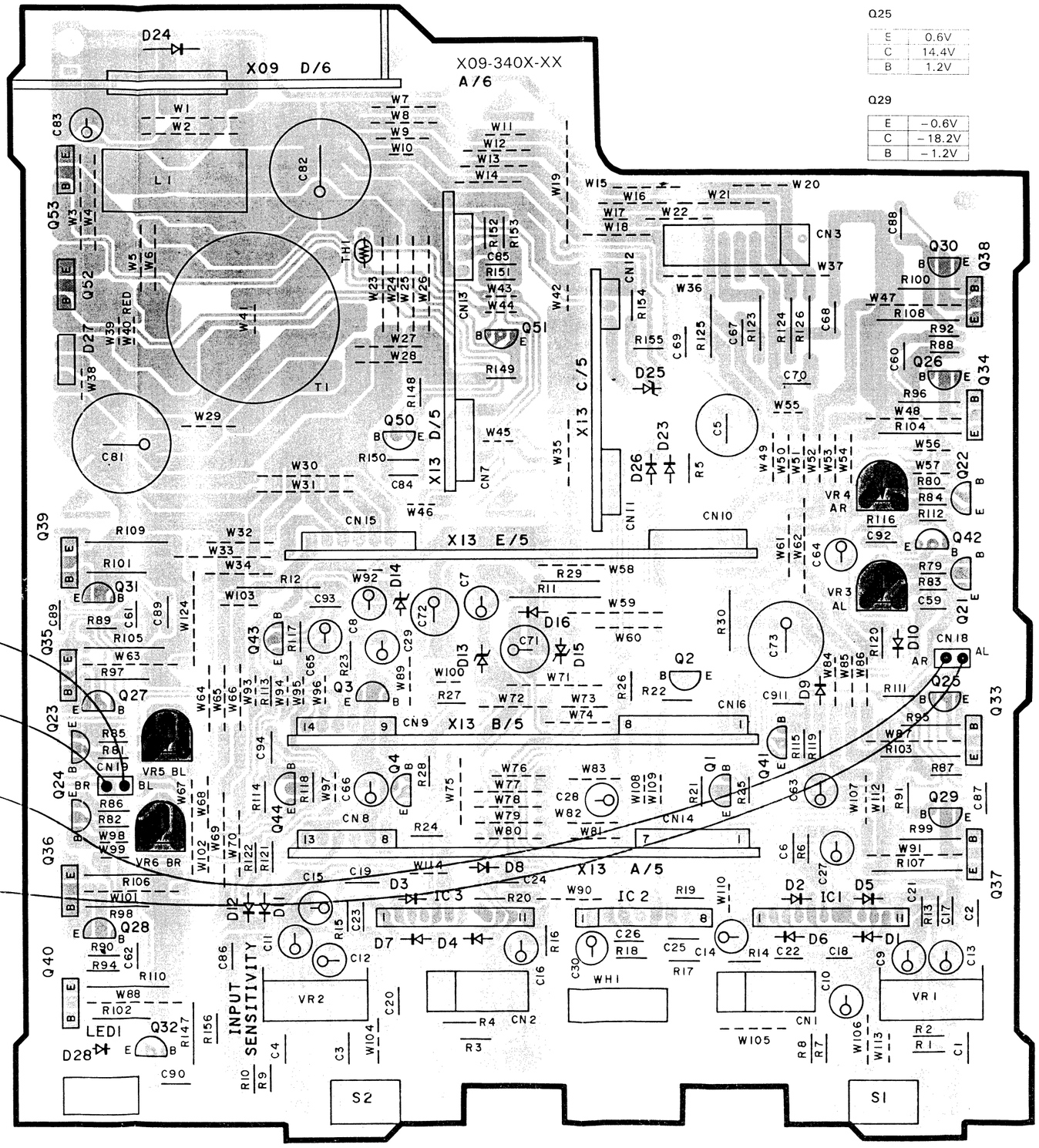
IC3	
1~4	0V
5	8.2V
6	0V
7	−8.2V
8	–
9~12	0V

PC BOARD (Component side view)

Q21	
E	−1.2V
C	1.2V
B	−0.6V

Q25	
E	0.6V
C	14.4V
B	1.2V

Q29	
E	−0.6V
C	−18.2V
B	−1.2V

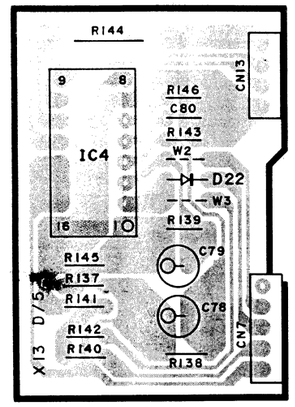


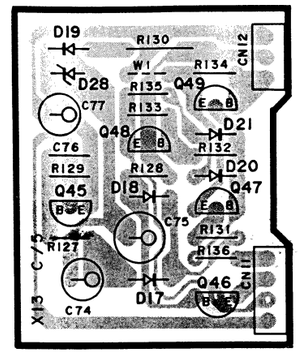
10

SUB-CIRCUIT UNIT (X13-6850-10)

IC4

1	2.2V
2	3.3V
3	0.1V
4	0.6V
5	1.7V
6	3.8V
7	0.1V
8	11.3V
9, 10	3.7V
11	11.3V
12	14.4V
13~15	5.0V
16	0V





Q45

E	5.2V
C	—
B	5.2V

Q46

E	10.2V
C	14.4V
B	10.9V

Q47

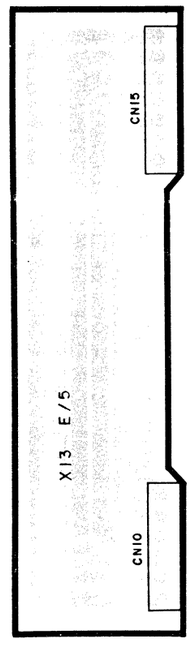
E	0V
C	10.7V
B	0.2V

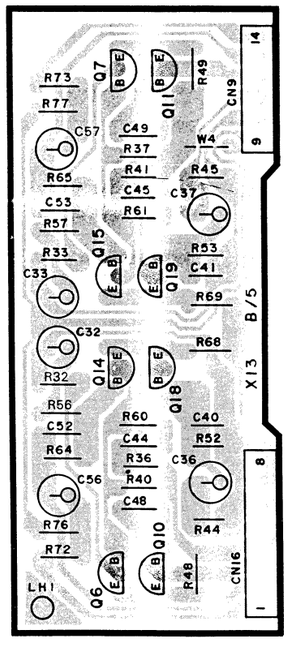
Q48

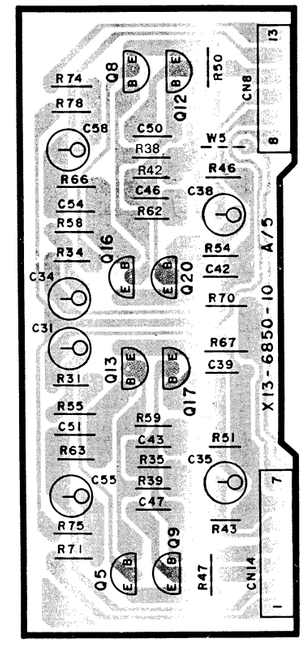
E	14.4V
C	14.4V
B	13.5V

Q49

E	0V
C	0V
B	0.7V







Q15

E	0.7V
C	−17.0V
B	0V

Q13

E	0.7V
C	−17.0V
B	0.1V

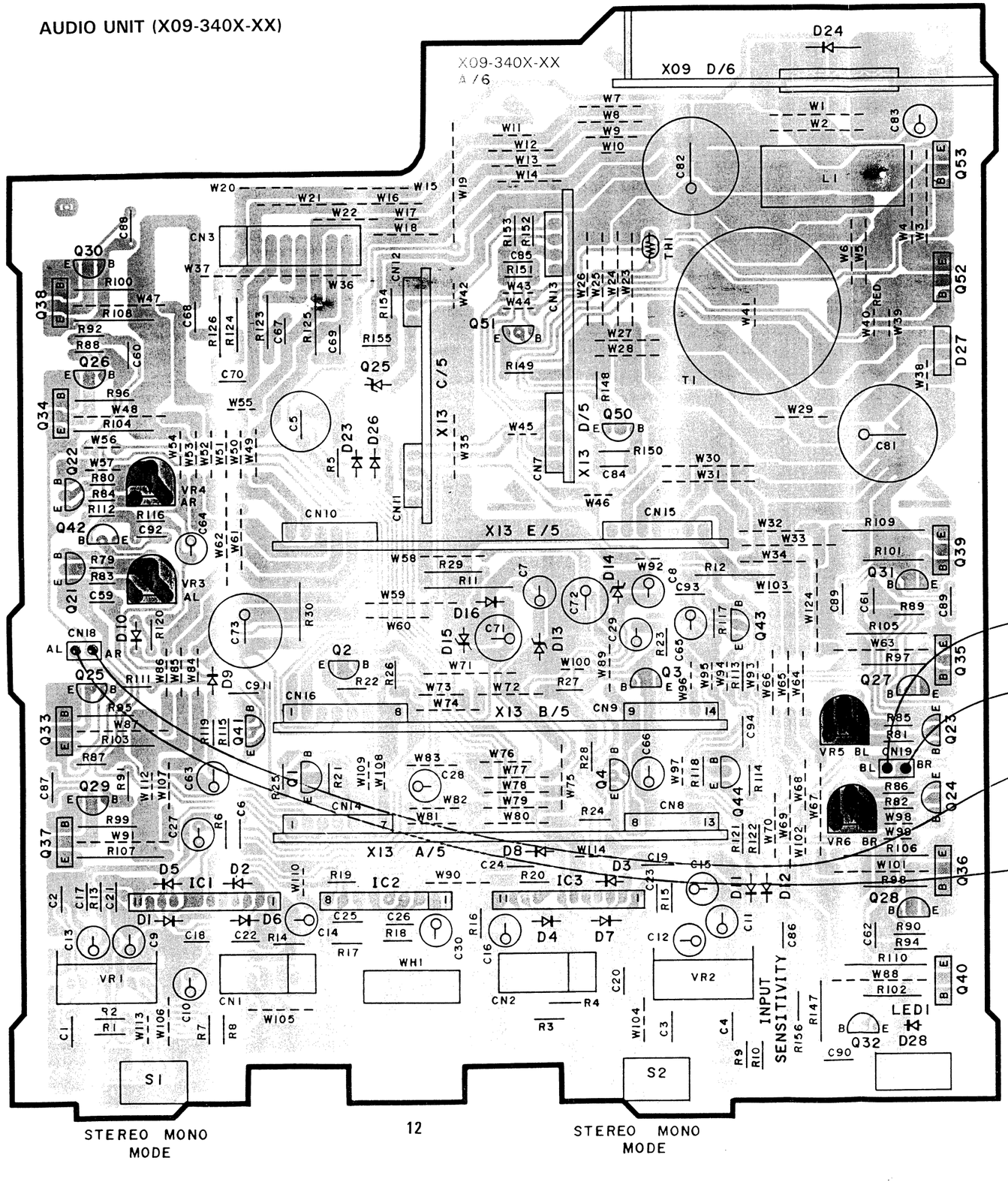
Q9

E	−17.5V
C	−1.2V
B	−17.0V

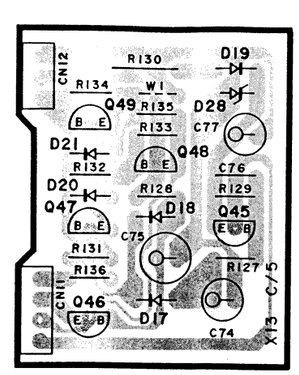
Refer to the schematic diagram for the values of resistors and capacitors.

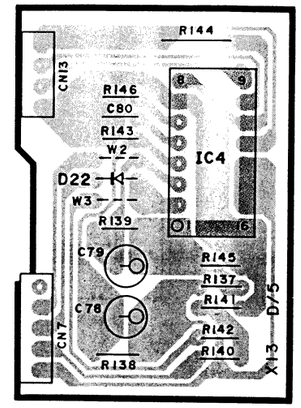
PC BOARD (Foil side view)

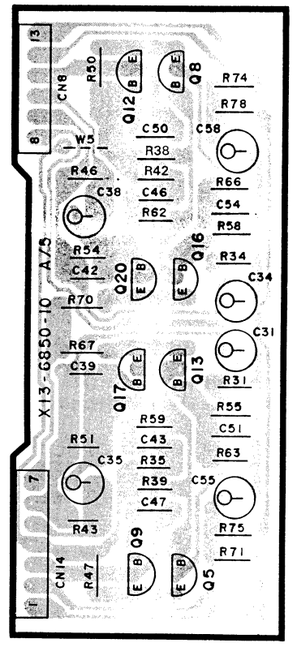
AUDIO UNIT (X09-340X-XX)

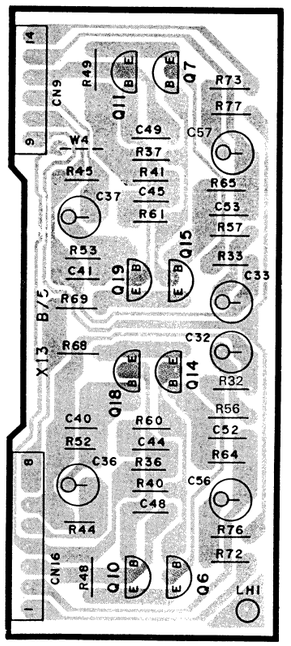

X09-340X-XX
A/6
X09 D/6
D24
W1
W2
C83
L1
Q53
W7
W8
W9
W10
W11
W12
W13
W14
W20
W21
W22
W16
W17
W18
W15
W19
C82
CN3
Q30
C88
R100
W37
W36
W47
R108
C68
R126
R124
R123
C67
R125
C69
R154
CN12
R155
W42
R153
R152
C85
R151
W43
W44
CN13
THI
W26
W25
W24
W23
W6
W5
W4
W3
RED.
Q52
Q51
W41
W40
W39
D27
W38
R92
R88
C60
Q26
R96
W48
R104
Q34
C70
W55
C5
Q25
C/5
X13
W56
W54
W53
W52
W51
W50
W49
Q22
W57
R80
R84
R112
R116
C92
C64
VR4
AR
D23
D26
R5
W35
R149
R148
D/5
Q50
R150
W45
W29
C81
CN7
C84
W30
W31
W46
CN15
X13 E/5
W32
W33
W34
R109
R101
Q31
Q39
R89
C89
C61
W124
W103
R12
C8
C93
W92
D14
C72
C7
W58
R29
R11
W59
W60
D16
D15
C71
D13
C29
R23
C65
R117
Q43
W71
W100
W89
W96
W95
W94
R113
W93
W66
W65
W64
W63
R105
R97
Q35
Q27
R85
R81
Q23
VR5
BL
CN19
BR
R86
R82
W98
W99
R106
W101
R98
Q24
VR6
Q28
R90
R94
R110
W88
R102
Q40
Q32
LED1
D28
R147
R156
C90
C86
C62
INPUT
SENSITIVITY
R10
R9
S2
S1
CN18
AL
AR
Q25
R111
W86
W85
W84
D9
C91
R95
W87
R103
Q33
R119
R115
Q41
R87
C87
Q29
R91
W112
W107
C63
C27
R6
C6
Q37
R99
W91
R107
CN16
X13 B/5
CN9
CN14
X13 A/5
CN8
W76
W77
W78
W79
W80
W83
C28
W82
W81
R28
R75
Q4
C66
W97
R118
R114
Q44
R121
R122
W70
W69
W102
W68
W67
R24
D8
W114
C19
C24
D3
C15
R20
IC3
C23
R15
D11
D12
R19
IC2
W90
C25
C26
R18
C30
R16
D4
D7
C12
C11
W110
IC1
D5
D2
D1
D6
C22
R14
C14
R17
C2
C17
R13
C21
C13
C9
C18
VR1
CN1
W105
WH1
C16
CN2
R4
R3
C20
VR2
W104
C3
C4
R2
R1
W113
W106
C10
R7
R8
C1
CN11
W42
W35
W61
W62
C64
R30
C73
D10
R120
D9
Q2
R22
R26
R27
W72
W73
W74
W71
W100
W89
W96
Q3

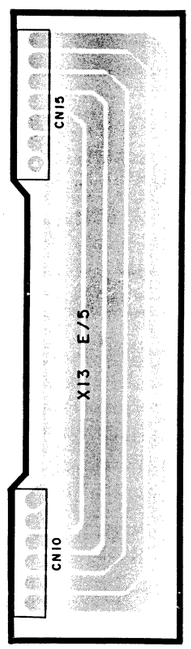
SUB-CIRCUIT UNIT (X13-6850-10)



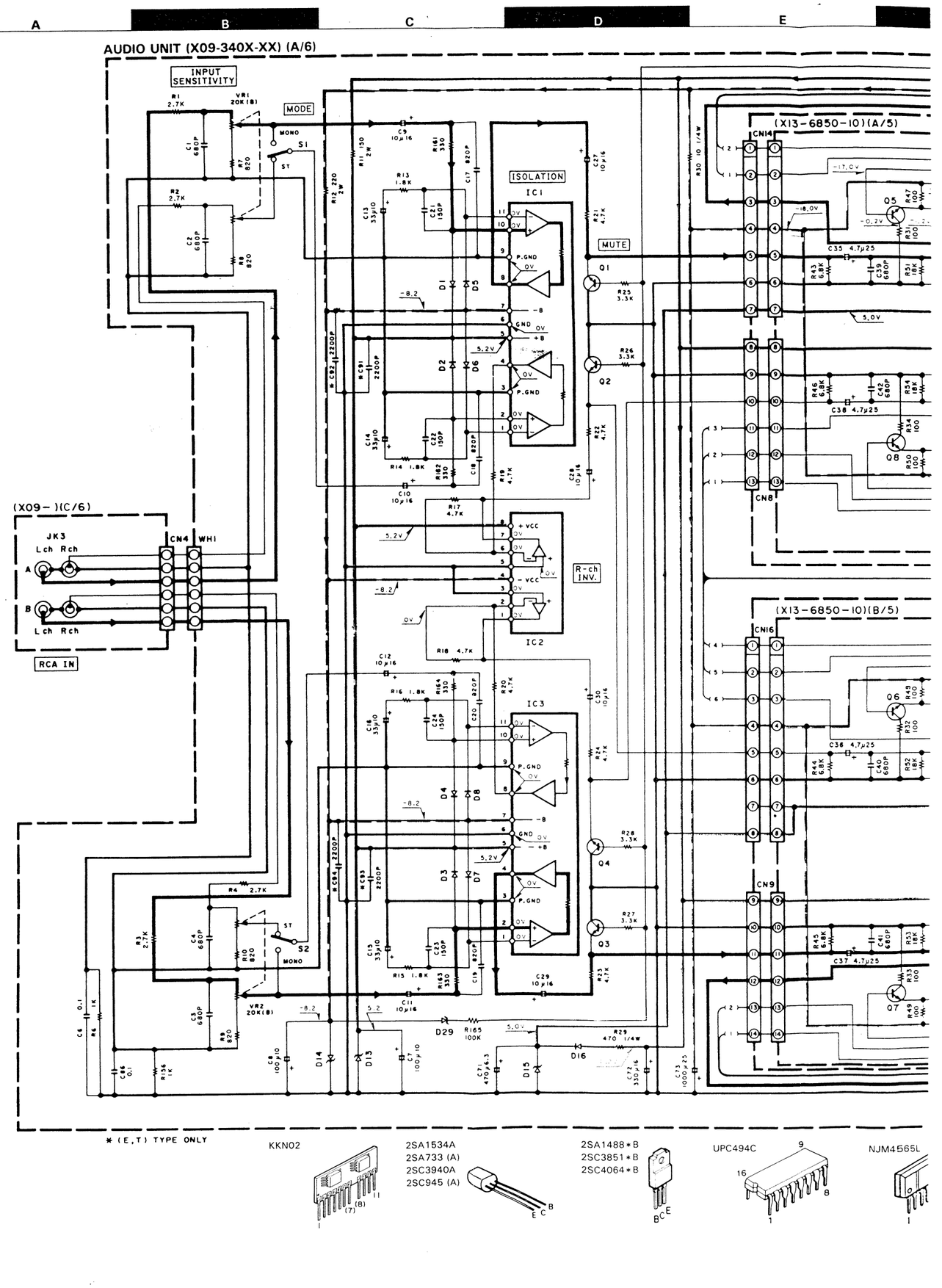








Refer to the schematic diagram for the values of resistors and capacitors.


AUDIO UNIT (X09-340X-XX) (A/6)
INPUT SENSITIVITY
MODE
MONO
ST
S1
ISOLATION
IC1
MUTE
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
R-ch INV.
IC2
IC3
(X13-6850-10)(A/5)
(X13-6850-10)(B/5)
CN14
CN8
CN16
CN9
(X09-)(C/6)
JK3
Lch Rch
RCA IN
CN4
WH1
S2
D29
D16
+VCC
-VCC
P.GND
GND
-8
+8
5.2V
5.0V
-17.0V
-18.0V
-0.2V
* (E,T) TYPE ONLY
KKN02
2SA1534A
2SA733 (A)
2SC3940A
2SC945 (A)
2SA1488*B
2SC3851*B
2SC4064*B
UPC494C
NJM4565L

SUB CIRCUIT UNIT (X13-6850-10) (C/5)

(X13-6850-10)(A/5)

(X13-6850-10)(B/5)

(X13-6850-10)(D/5)

(X09-)(B/6)

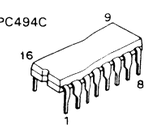
(X09-)(D/6)

SIGNAL LINE
GND LINE
+B LINE
−B LINE

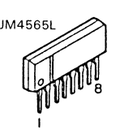
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

(X09-)		(X13-)	
IC1,3	: KKN02	IC4	: μPC494C
IC2	: NJM4565L		
Q1~4,21~24,41~44	: 2SC945(A)(Q,P)	Q5~12,49,47	: 2SC945(A)(Q,P)
Q25~28,50,51	: 2SC3940A(R,S)	Q13~20	: 2SA733(A)(Q,P)
Q29~32	: 2SA1534A(R,S)	Q45	: 2SA733(A)(Q,P)
Q33~36	: 2SC3851*B	Q46	: 2SC3940A(R,S)
Q37~40	: 2SA1488*B	Q48	: 2SA1534A(R,S)
Q52,53	: 2SC4064*B		
D1~12,16	: 1SS176	D17~22	: 1SS176
D13,15,25,29	: RD5.1JS(B2)	D28	: RD5.1JS(B2)
D14	: RD8.2JS(B2)		
D23,26	: ERA15-01Y1		
D24	: RM10Z		
D27	: FMU12R		
TH1	: PTH59F04BB222TS		

UPC494C



NJM4565L



DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or and units.

Y08-4400-11

KAC-644

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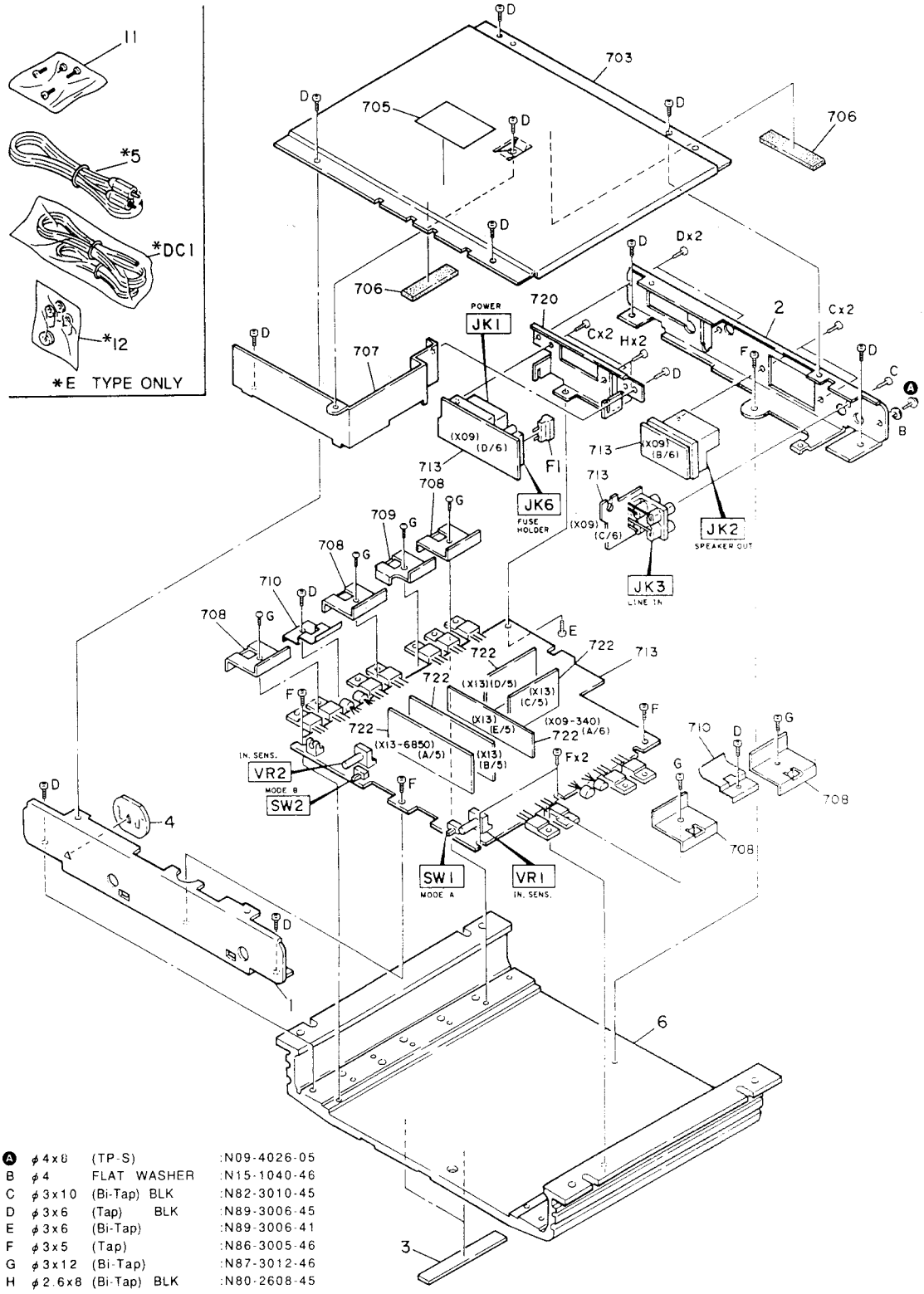
EXPLODED VIEW



A	φ4x8	(TP-S)	:N09-4026-05
B	φ4	FLAT WASHER	:N15-1040-46
C	φ3x10	(Bi-Tap) BLK	:N82-3010-45
D	φ3x6	(Tap) BLK	:N89-3006-45
E	φ3x6	(Bi-Tap)	:N89-3006-41
F	φ3x5	(Tap)	:N86-3005-46
G	φ3x12	(Bi-Tap)	:N87-3012-46
H	φ2.6x8	(Bi-Tap) BLK	:N80-2608-45

KAC-644 (K)

Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

× New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
KAC-644						
1	3A	*	A64-0001-03	PANEL		
2	1B	*	A84-0001-03	REAR PANEL		
3	3B	*	B03-3007-04	DRESSING PLATE		
4	2A		B19-0850-04	LIGHTING BOARD		
-			B46-0100-20	WARRANTY CARD		
-		*	B64-0240-00	INSTRUCTION MANUAL	K	
-		*	B64-0241-00	INSTRUCTION MANUAL	E	
5	1A	*	E30-4031-05	AUDIO CORD	E	
⚠ DC1	1A	*	E30-4024-05	DC CORD ASSY (CRITICAL P.)	E	
6	3B	*	F01-1415-01	HEAT SINK		
F1	2B		F05-1537-05	FUSE (15A)		
-			H10-4379-03	POLYSTYRENE FOAMED FIXTURE		
-			H25-0336-04	PROTECTION BAG (170X250X0.03)		
-			H25-0342-04	PROTECTION BAG (350X350X0.03)		
-		*	H54-0001-04	ITEM CARTON CASE		
-		*	H64-0001-04	OUTER CARTON CASE		
11	1A	*	N99-1599-05	SCREW SET		
A	2B		N09-4026-05	TAPPING SCREW (4X8,TP,S)		
B	2B		N15-1040-45	FLAT WASHER (4)		
C	1B		N82-3010-45	BINDIG HEAD TAPTITE SCREW		
D	1B		N89-3006-46	BINDING HEAD TAPTITE SCREW		
E	1B		N89-3006-41	BINDING HEAD TAPTITE SCREW		
F	2B		N86-3005-46	BINDING HEAD TAPTITE SCREW		
G	2A		N87-3012-46	BRAZIER HEAD TAPTITE SCREW		
12	1A		W01-0701-05	ACCESSORY	E	
AUDIO UNIT (X09-3400-12: K) (X09-3400-73: E)						
D28			B30-1342-05	LED		
C1 -3			CK45FB1H681K	CERAMIC 680PF K		
C4			CK45FB1H681K	CERAMIC 680PF K		
C5			C90-2576-05	NP-ELECT 330UF 16WV	E	
C6			CF92FV1H104J	MF 0.10UF J		
C7			C90-2550-05	ELECTRO 100UF 10WV		
C8			CE04DW1A101M	ELECTRO 100UF 10WV		
C9 ,10			CE04DW1C100M	ELECTRO 10UF 16WV		
C11			CE04DW1C100M	ELECTRO 10UF 16WV		
C12			CE04DW1C100M	ELECTRO 10UF 16WV		
C13 -16			CE04DW1A330M	ELECTRO 33UF 10WV		
C17 -20			CK45FB1H821K	CERAMIC 820PF K		
C21 -24			CC45FSL1H151J	CERAMIC 150PF J		
C27 -30			CE04DW1C100M	ELECTRO 10UF 16WV		
C59 -62			CK45FB1H102K	CERAMIC 1000PF K		
C63 -66			CE04DW1E4R7M	ELECTRO 4.7UF 25WV		
C67 -70			CF92FV1H473J	MF 0.047UF J		
C71			CE04DW1A471M	ELECTRO 470UF 10WV		
C72			CE04DW1C331M	ELECTRO 330UF 16WV		
C73			CE04DW1E102M	ELECTRO 1000UF 25WV		
C81			C90-2567-05	ELECTRO 2200UF 25WV		
C82			C90-2690-05	ELECTRO 4700UF 16WV		
C83			CE04DW1C100M	ELECTRO 10UF 16WV		
C84			CF92FV1H104J	MF 0.10UF J		

E : Europe **W** : Without Europe
P : Canada **K** : U.S.A. and Canada
X : Australia
M : Without Europe, U.S.A. and Canada

⚠ indicates safety critical components.

KAC-644

PARTS LIST

* New Parts
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Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C85			CF92FV1H104J	MF 0.10UF J		
C86			CF92FV1H104J	MF 0.10UF J		
C87 -90			CC45FSL1H151J	CERAMIC 150PF J		
C91 -94			CK45FB1H222K	CERAMIC 2200PF K	E	
			E31-5000-05	JUMPER WIRE		
CN3			E40-0856-05	SOCKET FOR PIN ASSY		
CN4			E40-3264-05	PIN ASSY		
CN18,19			E40-3640-05	PIN ASSY		
JK1		*	E70-0803-15	SCREW TERMINAL BOARD		
JK2			E70-0802-05	SCREW TERMINAL BOARD		
JK3			E63-0804-05	PHONO JACK		
WH1			E31-8226-05	WIRING HARNESS		
JK6			J13-0071-05	FUSE HOLDER		
L1			L33-0941-05	CHOKE COIL		
T1			L19-0515-05	TRANSFORMER FOR CONVERTER		
C	1B		N82-3010-45	BINDIG HEAD TAPTITE SCREW		
H	1B		N80-2608-45	PAN HEAD TAPTITE SCREW		
R11			RS14KB3D151J	FL-PROOF RS 150 J 2W		
R12			RS14KB3D221J	FL-PROOF RS 220 J 2W		
R30			RD14DB2H100J	SMALL-RD 10 J 1/2W		
R103-110			RS14KB3DR22J	FL-PROOF RS 0.22 J 2W		
R147		*	RD14DB2H332J	SMALL-RD 3.3K J 1/2W		
VR1 ,2			R10-3692-05	POTENTIOMETER(20K)		
VR3 -6			R12-0094-05	TRIMMING POT.(470 ｵｰﾑ)		
S1 ,2			S31-2075-05	SLIDE SWITCH		
D1 -12			1SS176	DIODE		
D13			RD5.1JS(B2)	ZENER DIODE		
D14			RD8.2JS(B2)	ZENER DIODE		
D15			RD5.1JS(B2)	ZENER DIODE		
D16			1SS176	DIODE		
D23			ERA15-01Y1	DIODE	E	
D24			RM10Z	DIODE		
D25			RD5.1JS(B2)	ZENER DIODE		
D26			ERA15-01Y1	DIODE	E	
D27			FMU12R	DIODE		
D29			RD5.1JS(B2)	ZENER DIODE		
IC1			KKN02	IC(ISOLATION AMPLIFIER)		
IC2			NJM4565L	IC(OP AMP X2)		
IC3			KKN02	IC(ISOLATION AMPLIFIER)		
Q1 -4			2SC945(A)(Q,P)	TRANSISTOR		
Q21 -24			2SC945(A)(Q,P)	TRANSISTOR		
Q25 -28			2SC3940A(R,S)	TRANSISTOR		
Q29 -32			2SA1534A(R,S)	TRANSISTOR		
Q33 -36			2SC3851*B	TRANSISTOR		
Q37 -40			2SA1488*B	TRANSISTOR		
Q41 -44			2SC945(A)(Q,P)	TRANSISTOR		
Q50 ,51			2SC3940A(R,S)	TRANSISTOR		
Q52 ,53			2SC4064*B	TRANSISTOR		
TH1			PTH59F04BB222TS	POSITIVE RESISTOR		
SUB-CIRCUIT UNIT (X13-6850-00)						
C31 -34			CE04DW0J470M	ELECTRO 47UF 6.3WV		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C35 -38			CE04DW1E4R7M	ELECTRO 4.7UF 25WV		
C39 -42			CK45FB1H681K	CERAMIC 680PF K		
C43 ,44		*	CF92FV1H562J	MF 5600PF J		
C45 ,46			CF92FV1H562J	MF 5600PF J		
C47 -54			CC45FSL1H270J	CERAMIC 27PF J		
C55 -58			CE04DW1A101M	ELECTRO 100UF 10WV		
C74			CE04DW1A330M	ELECTRO 33UF 10WV		
C75			CE04DW1C101M	ELECTRO 100UF 16WV		
C77			CE04DW1A101M	ELECTRO 100UF 10WV		
C78			CE04DW1C100M	ELECTRO 10UF 16WV		
C79			CE04DW1A330M	ELECTRO 33UF 10WV		
C80			CK45FB1H102K	CERAMIC 1000PF K		
CN7			E40-9118-05	PIN ASSY		
CN8 -10			E40-9119-05	PIN ASSY		
CN11			E40-9209-05	PIN ASSY		
CN12,13			E40-9210-05	PIN ASSY		
CN14,15			E40-9211-05	PIN ASSY		
CN16			E40-9171-05	PIN ASSY		
D17 -22			1SS176	DIODE		
D28			RD5.1JS(B2)	ZENER DIODE		
IC4			UPC494C	IC(SWITCHING REGULATOR)		
Q5 -12			2SC945(A)(Q,P)	TRANSISTOR		
Q13 -20			2SA733(A)(Q,P)	TRANSISTOR		
Q45			2SA733(A)(Q,P)	TRANSISTOR		
Q46			2SC3940A(R,S)	TRANSISTOR		
Q47			2SC945(A)(Q,P)	TRANSISTOR		
Q48			2SA1534A(R,S)	TRANSISTOR		
Q49			2SC945(A)(Q,P)	TRANSISTOR		

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KAC-644

SPECIFICATIONS

Audio Section

Max Power Output (4 Ω)
- 4 Channel Mode ..... 40 W × 4
- 3 Channel Mode ..... 40 W × 2 + 90 W
- 2 Channel Mode ..... 90 W × 2

Rated Power Output (4 Ω)
- 4 Channel Mode ..... 16 W × 4 (20 Hz~20 kHz, less than 0.08% THD)
- 3 Channel Mode ..... 16 W × 2 (20 Hz~20 kHz, 0.08%) + 45 W × 1 (1 kHz 0.8%)
- 2 Channel Mode ..... 45 W × 2 (1 kHz, 0.8% THD)

Rated Power Output (2 Ω)
- 4 Channel Mode ..... 25 W × 4 (1 kHz, 0.8% THD)

Frequency Response ..... 5 Hz ~ 35 kHz (– 3 dB)
Signal to Noise Ratio ..... 100 dB
Sensitivity (MAX) ..... 0.15 V (rated output)
Sensitivity (MIN) ..... 3.0 V (rated output)
Input Impedance ..... 10 kΩ
Damping Factor (100 Hz) ..... More than 100

General

Operating Voltage ..... 14.4 V (11 ~ 16 V allowable)
Current Consumption (1 kHz, 10% THD) ..... 16 A
Dimensions (W × H × D) ..... 220 × 48 × 185 mm (8-11/16 × 1-7/8 × 7-5/16 in)
Weight ..... 2.1 kg (4.6 lb)

Note:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

KENWOOD CORPORATION
Alive Mitake, 2-5, 1-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

KENWOOD U.S.A. CORPORATION
P.O. BOX 22745, 2201 East Dominguez St., Long Beach, CA 90810 U.S.A.
550 Clark Drive, Mount Olive, New Jersey 07828, U.S.A.
99-994 Iwaena St. Aiea, Hawaii 96701

KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

KENWOOD ELECTRONICS LATIN AMERICA S.A.
P.O. BOX 55-2791, Piso 6 Plaza Chase, Cl. 47 y Aquilino de la Guardia, Panama, Republic de Panama

TRIO-KENWOOD U.K. LIMITED
KENWOOD House, Dwight Road, Watford, Herts, WD1 8EB United Kingdom

KENWOOD ELECTRONICS BENELUX N.V.
Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrücker Str. 15, 6056 Heusenstamm, Germany

TRIO-KENWOOD FRANCE S.A.
13 Boulevard Ney, 75018 Paris, France

KENWOOD LINEAR S.p.A.
20125, Milano-Via Arbe, 50, Italy

KENWOOD ESPAÑA S.A.
Bolivia, 239-08020 Barcelona, Spain

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. (A.C.N. 001 499 074)
P.O. BOX 504, 8 Figtree Drive, Australia Centre, Homebush, N.S.W. 2140, Australia

KENWOOD & LEE ELECTRONICS, LTD.
Unit 3712-3724, Level 37 Tower 1, Metroplaza, 223 Hing Fong Road, Kwai Fong N.T. Hong Kong

KENWOOD ELECTRONICS SINGAPORE PTE LTD
No. 1 Genting Lane # 07-00, Singapore, 1334